

**EXHIBIT D - ROAD SUMMARY**  
See Also Exhibit A (Contract Area Map) and Exhibit C

Unit #	Surface		Stations	Description	Type	Total Stations	Total Length	
	Length (ft)	Width (ft)					(ft)	Distance (mi)
7-1	486	12	4.86	Road Construction	No blade over water utility	4.86	486	0.09
	486		4.86	Road Decommissioning		4.86	486	0.09
7-2	13,212		132.12	Road Reconstruction		132.12	13,212	2.50
	47,771		477.71	Road Maintenance	Haul Routes	477.71	47,771	9.05
				<b>Road Maintenance</b>		477.71	47,771	9.05
				<b>Road Construction</b>		4.86	486	0.09
				<b>Road Decommissioning</b>		4.86	486	0.09
				<b>Road Reconstruction</b>		132.12	13,212	2.50

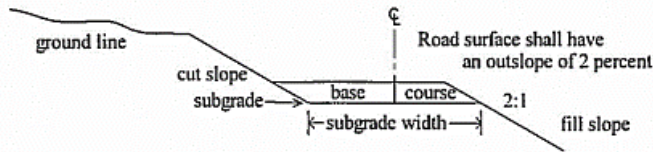
**Decommissioning Constructed Roads, Landings, & Skid Trails (Total AC):** 6.02

**Road Reconstruction:** The contract will require the purchaser to renovate approximately 2.5 miles of existing roads and trails. However, most road renovation can be accomplished during normal logging operations. Most of the road renovation could be accomplished by simple brushing and removal of small trees that have grown into existing roads.

**Road Maintenance:** See Exhibit C

**Decommissioning:** Decompact temporary road construction surfaces, skid trails, and constructed landings. Rip to an approximate 10-18" depth, and place woody debris on deconstructed surfaces.

**Specification Sheet**



1. <u>Road Standard</u>	<u>SN-14</u>	_____	_____
2. <u>Alignment</u>		_____	_____
Max. degree of curve	<u>75°</u>	_____	_____
3. <u>Road Width</u>			
Subgrade	<u>14 ft.</u>	_____ ft.	_____ ft.
Subgrade at turnout	<u>24 ft.</u>	_____ ft.	_____ ft.
4. <u>Gradient</u>			

7. Surfacing

Max. favorable	<u>15%</u>	_____	_____
Max. adverse	<u>15%</u>	_____	_____

5. Clearing Width

Beyond top of cut	<u>3</u> ft.	_____ ft.	_____ ft.
Beyond toe of fill	<u>0</u> ft.	_____ ft.	_____ ft.

6. Surfacing

Min. width	<u>12</u> ft.	_____ ft.	_____ ft.
Compacted depth	<u>4</u> in.	_____ in.	_____ in.

7. Full Bench Construction

Slopes 60% and over shall be full bench construction.

8. Excavation Slopes

Common	<u>Cut Slopes</u>	<u>Fill Slopes</u>
Soft rock and shale	3/4:1	1 1/2:1
Solid rock	1/2:1	Angle of repose

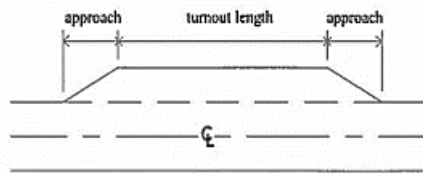
9. Extra Subgrade Widths

Add to each fill shoulder 1 ft. for fills 1-6 ft., 2 ft. for fills over 6 ft.

Widen inside shoulder of all curves as follows:

When degree of curve equals:	
7° - 21° - 1 ft.	49° - 64° - 4 ft.
22° - 35° - 2 ft.	65° - 115° - 5 ft.
36° - 48° - 3 ft.	

Typical Turnout



10. Turnouts

Standard length: 50 ft., approach length: 25 ft.

Width: 10 ft. in addition to subgrade width.

Location: intervisible or not over 700 ft. apart.

Surfacing width: 10 ft. in addition to min. surface widths.

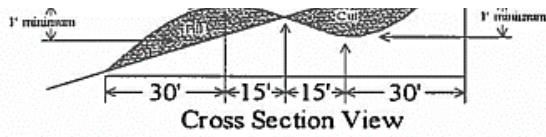
## Water Dip Specifications

(For Roads with Grades Greater Than 8 Percent)

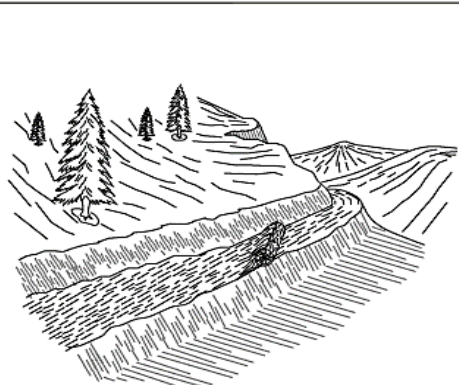


Typical Water Dip



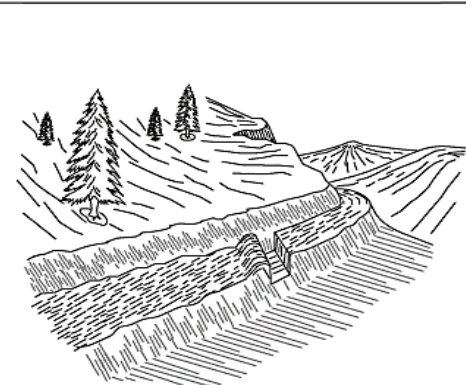


WATER DIP SPECIFICATIONS						
ROAD GRADE IN %	SOIL TYPE			ROAD GRADE IN %	SOIL TYPE	
	GRANITIC OR SANDY	SHALE OR GRAVEL			GRANITIC OR SANDY	SHALE OR GRAVEL
1	1000	1000		9	300	900
2	900	1000		10	300	800
3	600	1000		11	300	700
4	400	1000		12	300	700
5	400	1000		13	300	600
6	300	1000		14	300	600
7	300	1000		15	300	500
8	300	900				



LOG BARRICADE

1" = 24" Mln



TRENCH BARRICADE

1" = 24" Mln

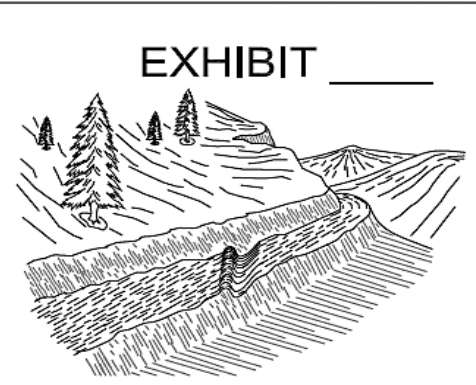
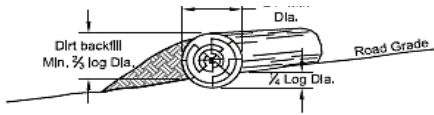


EXHIBIT \_\_\_\_\_

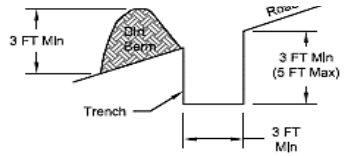
WATER BAR

1" = 5" Mln

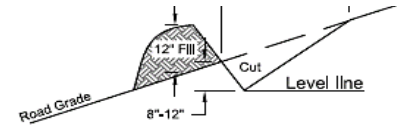
Direction of flow



1. Log barricade shall be constructed as shown above.
2. Exact location is listed in Work List.
3. All barricades shall be skewed 30 degrees.
4. The length shall be sufficient to extend from the cut bank to the fill slope.
5. The minimum small end diameter of the log barricade shall be 24".

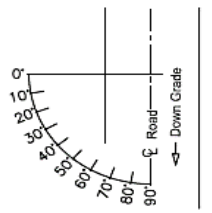


1. Barricade length shall extend across the entire road surface to a point sufficient to prohibit motor vehicle traffic.
2. Exact location is listed in the Work List.
3. All barricades shall be skewed as needed to drain or as directed by the Authorized Officer.



1. Water bars shall be constructed as shown above.
2. Exact location will be flagged by the Authorized Officer prior to construction.
3. All water bars shall be skewed 30 degrees.
4. Upon completion of skidding logs, for the logging season, each skid road will have cross drainage constructed as shown above.

**SKIEW DIAGRAM**



**WATER BAR SPACING\* BY EROSION CLASS\***

ROAD GRADE	HIGH	MODERATE	LOW
%	FEET	FEET	FEET
2-5	200	300	400
6-10	150	200	300
11-15	100	150	200
16-20	75	100	150
21-35	50	75	100
35*	50	50	50

\* Spacing is determined by slope distance and is the maximum allowed for the grade.  
 ^ The erosion classes include the following rock types:  
**High:** Granite, sandstone, andesite porphyry, glacial or alluvial deposits, soft matrix conglomerate, volcanic ash, and pyroclastics.  
**Moderate:** Basalt, andesite, quartzite, hard matrix conglomerate, and rhyolite.  
**Low:** Metasediments, metavolcanics, and hard shale.

*ALWAYS  
 THINK  
 SAFETY*

REV. NO.	DESCRIPTION	DATE	APPROV.
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT MEDFORD DISTRICT - MEDFORD, OREGON			
<b>STANDARD            BARRICADE AND            WATER BAR DETAILS</b>			
DRAFTED BY: BLM		SCALE: NONE	
DATE: JULY 2019		SHEET: 1 OF 1	
DRAWING NO.: OR-11-9113.4-4			